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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/727,428	12/04/2003	Graeme G. Schreiber	GB920020044US1	6836

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EXAMINER	
ABEDIN, SHANTO	
ART UNIT	**PAPER NUMBER**
2136	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/727,428	SCHREIBER ET AL.	
	Examiner	Art Unit	
	Shanto M Z Abedin	2136	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *03* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *13 December 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-6* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____is/ are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to communications filed on 12/13/2007.

2. Claims 1 and 3-6 are pending in the application.

3. Claims 1 and 3-6 have been rejected.

Response to Arguments

4. The applicant's arguments regarding the previous 35 USC 103(a) type rejections of claims 1 and 3-6 are fully considered, however, found not persuasive. Furthermore, these arguments are also now moot in view of new grounds of rejection presented in this office action.

In particular, the applicant argues that independently or in combination cited prior art Kermani or Serpa fails to disclose wherein each relative inter-keystroke interval is calculated as the absolute inter-keystroke interval divided by an anchor value that is a first absolute inter-keystroke interval between first and second characters.

In response to the applicant's above arguments, the examiner respectfully disagrees with the applicant for following reasons:

According to the specification of the instant application (please see Par 0049-0051), a keystroke 'tempo' is disclosed as "relative inter keystroke interval", and such 'tempo' together with keystroke 'rhythm' and password character sequence are compared to authenticate the inputted password. Cited reference Serpa discloses similar methodology to authenticate the inputted password – like claimed invention, it compares password/ keystroke rhythm, tempo, and character sequence to authenticate the inputted password (please see Serpa, Col 2, starting from line 29). Although Serpa reference fails to disclose computing the 'tempo' or relative inter-keystroke interval as dividing the absolute inter-keystroke interval by an anchor value that is a first absolute inter-keystroke interval

between first and second characters, Serpa's teachings of 'tempo' suggests enablement of such computation/ calculation, or at least, at the time of invention, it would be logically obvious to a person of ordinary skill in art to compute such keystroke 'tempo' or "relative inter keystroke interval" as a ratio of an absolute inter keystroke interval and difference between any two keystrokes, or first and second absolute inter keystroke value (please see below for detail explanation).

Double Patenting

5. The examiner notes, although no double patenting type rejections are presented in this office action, claim set of the instant application closely resembles claim set of the commonly owned US Patent No 7,305, 559 B2, and could raise an issue for obvious type double patenting rejections at later time.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1 and 3-6 have been rejected under the second paragraph of 35 U.S.C. 112 for insufficient antecedent basis in the claims.

Regarding Claims 1 and 3-6, they recite the limitations such as "said absolute comparison step" and "said relative comparison step", However, there is insufficient antecedent basis for this limitations in the claim.

Furthermore, regarding Claims 1 and 3-6, they recite the limitations such as "calculated as the absolute inter-keystroke interval divided by", However, there is insufficient antecedent basis for this limitations in the claim since it is not clear which one of each absolute inter-keystroke interval is considered to be the absolute inter-keystroke interval.

Furthermore, regarding Claims 1 and 3-6, they recite the limitations such as " the unique identifier", However, there is insufficient antecedent basis for this limitations in the claim since it is not clear whether "the unique identifier" is referring to a user, or a unique identifier!

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1 and 3-6 are rejected under 35 USC 103 (a) as being unpatentable over Kermani (US 6895514 B1) in view of Serpa (US 6954862 B2) further in view of Bohannon et al (US 6901,145 B1)

Regarding claim 1, Kermani discloses a method of authenticating a user comprising the steps of:

providing, by the user, a unique identifier, the unique identifier comprising both a sequence of keystrokes and the inter-keystroke intervals associated with provision of those keystrokes (Col 2; starts at line 29; Col 3, lines 20-40; ; user provided key stroke sequence and timing model).

comparing the unique identifier provided by the user with a reference unique identifier (Col 4, starts at line 34) by:

comparing absolute inter-keystroke intervals of the unique identifier with absolute inter-keystroke intervals of the reference unique identifier and returning a true indication if the absolute inter-keystroke interval of the unique identifier is within a predetermined tolerance of the absolute inter-keystroke interval of the reference identifier, wherein each absolute inter-keystroke interval is a time interval between entries of two characters (Col 3 line 20 to Col 6, line 14; comparing/ computing key stroke intervals/ lapses/ distances);

comparing the relative inter-keystroke intervals of the unique identifier with the relative inter-keystroke intervals of the reference unique identifier and returning a true indication if the relative inter-keystroke interval of the unique identifier is within a predetermined tolerance of the relative inter-keystroke interval of the reference identifier (Col 3, starting at line 40; Col 5, lines 1-30; threshold values) wherein each relative inter-keystroke interval of the reference identifier (Col 5, starts at line 45; Eq. 2; calculating distance of keystrokes using absolute values and mean values of the keystroke intervals; deviation).

authenticating said user if both said absolute comparison step and said relative comparison step return a true indication (Col 3, lines 20-54).

Kermani fails to disclose wherein each relative inter-keystroke interval is calculated as the absolute inter-keystroke interval divided by an anchor value, that is a first absolute inter-keystroke interval between first and second characters.

However, Serpa suggests enablement of wherein each relative inter-keystroke interval is calculated as the absolute inter-keystroke interval divided by an anchor value, that is a first absolute

inter-keystroke interval between first and second characters (Fig 1, Col 15, starting at line 54; Claim 1;calculating and comparing certain pace, rhythm, or tempo; the examiner interprets such certain tempo as relative inter-keystroke interval or tempo). Furthermore, at the time of invention, it would be logically obvious to a person of ordinary skill in art to compute such keystroke 'tempo' or "relative inter keystroke interval" as a ratio of an absolute inter keystroke interval and difference between any two keystrokes, or first and second absolute inter keystroke value.

Serpa further teaches authenticating said user if both said absolute comparison step and said relative comparison step return a true indication (Col 2, starting from line 29; comparing rhythm and tempo of the keystrokes).

In the case, position for inherency/ enablement, or obviousness regarding wherein each relative inter-keystroke interval is calculated as the absolute inter-keystroke interval divided by an anchor value, that is a first absolute inter-keystroke interval between first and second characters (or calculation of tempo or relative inter-keystroke interval as ratio of the absolute inter-keystroke interval and an anchor value, that is a first absolute inter-keystroke interval between first and second characters) is not found to supportive, the examiner notes, Bohannon et al teaches calculation of tempo or relative inter-keystroke interval as ratio of the absolute inter-keystroke interval and an anchor value, that is a first absolute inter-keystroke interval between first and second characters (Col 11, starts at line 33; computing latencies of keypresses from ratio of the two keypresses; the examiner interprets first keypress time/ latency can be interpreted as one of the absolute inter-keystroke interval, and the second keypress time/ latency can be interpreted as absolute inter-keystroke interval between first and second characters)

Bohannon et al , Serpa and Kermani are analogous art because they are from the same field of endeavor of authentication system. At the time of invention it would have been obvious to a person of ordinary skill in the art to combine the teaching of Bohannon et al and/ or Serpa with Kermani to design a method further including wherein each relative inter-keystroke interval is calculated as the absolute inter-keystroke interval divided by an anchor value, t that is a first absolute inter-keystroke interval between first and second characters in order to provide an alternative way to calculate the keystroke tempo.

Regarding claim 3, Kermani discloses a method further comprising the step of entry by the user of the reference unique identifier and wherein said predetermined tolerance is determined during said step of entry by the user of the reference unique identifier (Col 2, lines 20-50; Col 3, starting at line 40; Col 5, lines 1-30; threshold values).

Regarding claim 4, Kermani discloses a method wherein said predetermined tolerance is explicitly set by the user (Col 3, line 20 to Col 5, lines 1-30; decision circuit at user machine).

Regarding claim 5, Kermani discloses a computer program comprising computer program code means adapted to perform the steps of any one of claim 1 to claim 4 (Col 3 line 20 to Col 4, line s 25).

Regarding claim 6, Kermani discloses the method wherein said predetermined tolerance of the relative inter-keystroke interval is in the range of plus twenty-five percent to minus twenty-five

percent (Col 5, starts at line 9; Col 7, starts at line 26; Kermani teaches accepting up to 20% mismatch or 80% match as threshold; Kermani suggests enablement of tolerance/ mismatch of twenty five percent).

8. Claims 1 and 3-6 are further rejected under 35 USC 103 (a) as being unpatentable over Kermani (US 6895514 B1) in view of Serpa (US 6954862 B2) further in view of Young et al (US 4805222)

Regarding claim 1, Kermani discloses a method of authenticating a user comprising steps of:

providing, by the user, a unique identifier, the unique identifier comprising both a sequence of keystrokes and the inter-keystroke intervals associated with provision of those keystrokes (Col 2; starts at line 29; Col 3, lines 20-40; user provided key stroke sequence and timing model);

comparing the unique identifier provided by the user with a reference unique identifier (Col 4, starts at line 34) by:

comparing absolute inter-keystroke intervals of the unique identifier with absolute inter-keystroke intervals of the reference unique identifier and returning a true indication if the absolute inter-keystroke interval of the unique identifier is within a predetermined tolerance of the absolute inter-keystroke interval of the reference identifier, wherein each absolute inter-keystroke interval is a time interval between entries of two characters (Col 3 line 20 to Col 6, line 14; comparing/ computing key stroke intervals/ lapses/ distances);

comparing the relative inter-keystroke intervals of the unique identifier with the relative inter-keystroke intervals of the reference unique identifier and returning a true indication if the relative inter-keystroke interval of the unique identifier is within a predetermined tolerance of the

relative inter-keystroke interval of the reference identifier (Col 3, starting at line 40; Col 5, lines 1-30; threshold values) wherein each relative inter-keystroke interval of the reference identifier (Col 5, starts at line 45; Eq. 2; calculating distance of keystrokes using absolute values and mean values of the keystroke intervals; deviation).

authenticating said user if both said absolute comparison step and said relative comparison step return a true indication (Col 3, lines 20-54).

Kermani fails to disclose wherein each relative inter-keystroke interval is calculated as the absolute inter-keystroke interval divided by an anchor value, that is a first absolute inter-keystroke interval between first and second characters.

However, Serpa suggests enablement of wherein each relative inter-keystroke interval is calculated as the absolute inter-keystroke interval divided by an anchor value, that is a first absolute inter-keystroke interval between first and second characters (Fig 1, Col l5, starting at line 54; Claim 1;calculating and comparing certain pace, rhythm, or tempo; the examiner interprets such certain tempo as relative inter-keystroke interval or tempo). Furthermore, at the time of invention, it would be logically obvious to a person of ordinary skill in art to compute such keystroke 'tempo' or "relative inter keystroke interval" as a ratio of an absolute inter keystroke interval and difference between any two keystrokes, or first and second absolute inter keystroke value.

Serpa further teaches authenticating said user if both said absolute comparison step and said relative comparison step return a true indication (Col 2; starting from line 29; comparing rhythm and tempo of the keystrokes).

In the case, position for inherency/ enablement, or obviousness regarding wherein each relative inter-keystroke interval is calculated as the absolute inter-keystroke interval divided by an

anchor value, that is a first absolute inter-keystroke interval between first and second characters (or calculation of tempo or relative inter-keystroke interval as ratio of the absolute inter-keystroke interval and an anchor value, that is a first absolute inter-keystroke interval between first and second characters) is not found to supportive, the examiner notes, Young et al teaches calculation of tempo or relative inter-keystroke interval as ratio of the absolute inter-keystroke interval and an anchor value, that is a first absolute inter-keystroke interval between first and second characters (Col 4, line 19 to Col 5, line 14; Col 7, starting at line 6; computing keystroke intervals by computing average inter-character time, or variance or ratio of keystroke time)

Young et al, Serpa and Kermani are analogous art because they are from the same field of endeavor of authentication system. At the time of invention it would have been obvious to a person of ordinary skill in the art to combine the teaching of Young et al and/ or Serpa with Kermani to design a method further including wherein each relative inter-keystroke interval is calculated as the absolute inter-keystroke interval divided by an anchor value, t that is a first absolute inter-keystroke interval between first and second characters in order to provide an alternative way to calculate the keystroke tempo.

Regarding claim 3, Kermani discloses a method further comprising the step of entry by the user of the reference unique identifier and wherein said predetermined tolerance is determined during said step of entry by the user of the reference unique identifier (Col 2, lines 20-50; Col 3, starting at line 40; Col 5, lines 1-30; threshold values).

Regarding claim 4, Kermani discloses a method wherein said predetermined tolerance is explicitly set by the user (Col 3, line 20 to Col 5, lines 1-30; decision circuit at user machine).

Regarding claim 5, Kermani discloses a computer program comprising computer program code means adapted to perform the steps of any one of claim 1 to claim 4 (Col 3 line 20 to Col 4, line s 25).

Regarding claim 6, Kermani discloses the method wherein said predetermined tolerance of the relative inter-keystroke interval is in the range of plus twenty-five percent to minus twenty-five percent (Col 5, starts at line 9; Col 7, starts at line 26; Kermani teaches accepting up to 20% mismatch or 80% match as threshold; Kermani suggests enablement of tolerance/ mismatch of twenty five percent).

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shanto M Z Abedin whose telephone number is 571-272-3551. The examiner can normally be reached on M-F from 9:00 AM to 5:30 PM. If attempts to reach the examiner by telephone are

unsuccessful, the examiner's supervisor, Moazzami Nasser, can be reached on 571-272-4195. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

I nformation regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Shanto M Z Abedin

Examiner, AU 2136

NASSER MOAZZAMI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

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